

HALLIBURTON

iCem® Service

CRESTONE PEAK RESOURCES-EBUS

Property Reserve 4-65 3-4 3BH Production

Job Date: Wednesday, February 22, 2023

Sincerely,

Meghan Van Zyl

Legal Notice

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Property Reserve 4-65 3-4 3BH - Production**. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

Approximately 52bbls of cement were returned to surface.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

Halliburton Rockies Cement Team

1.2 Job Overview

Job Details	
API #:	05-005-07521
City, County:	Weld

Job Times			
	Date (mm/dd/yyyy)	Time (hh:mm)	Time Zone
Requested Time On Location:	02/21/2023	20:00	MTN
Called Out Time:	02/21/2023	14:00	MTN
Arrived On Location:	02/21/2023	20:00	MTN
Job Started:	02/22/2023	01:41	MTN
Job Completed:	02/22/2023	04:31	MTN
Departed Location:	02/22/2023	06:00	MTN

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	25
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	OBM
3	Mud density	ppg	9.5
4	Casing set depth (shoe)	ft	18120
5	TVD	ft	8000
6	Float collar depth	ft	18115
7	Length of rate hole	ft	22
8	Previous casing shoe depth	ft	3330
9	Pre-job mud circulation time	hh:mm	23:30
10	Pre-job mud circulation rate	bpm	11
11	Pre-job mud circulation volume	bbls	850

12	Pre-job mud circulation pressure	psi	1100
13	Annual flow before the start of job	Y/N	N
14	Pipe movement during cement job	Y/N	N
15	Calculated displacement	bbls	402
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	100
18	Fluid returns to surface	Spacer/Cement, bbls	CMT, 50bbls
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2780psi @4bpm
20	Number of Centralizers	-	
21	Number of plugs	-	2

1.3 Water Field Test

	Recorded Value	Unit	Acceptable Limit	Potential Problems if Values Exceed the Limit
pH	7		6.0 - 8.0	Chemicals in water can cause severe retardation
Temperature	65	F	60 - 80 F	
Chlorides	0	ppm	3000 ppm	Can shorten thickening time

1.4 Actual Pump Schedule

	Density (ppg)	Volume (bbls)	Yield (ft ³ /sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
Bottom Plug	1					
Spacer Fluid	11.5	50	3.83	24.16	73	1771
Cap Cement	13	171	1.67	8.25	575	4744
Lead Cement	13	212.5	1.55	7.16	770	5513
Tail Cement	13.2	433	1.59	7.78	1530	11903
Top Plug	1					
Displacement Fluid	8.33	402				16884

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Comments
1	Call Out	2/21/2023	14:00:00	Called out by service coordinator for OL time of 0800.
2	Pre-Convoy Safety Meeting	2/21/2023	18:45:00	Discuss all hazards associated with journey, directions to destination, complete journey management if needed, and ensure all convoy is fit for duty.
3	Depart from Service Center or Other Site	2/21/2023	19:00:00	Depart from service center or other job site.
4	Arrive at Location from Service Center	2/21/2023	20:00:00	Upon arrival to location, signed in with onsite safety personnel. Met with company man and discussed job specific requirements and specifications.
5	Pre-Rig Up Safety Meeting	2/21/2023	20:15:00	Held pre rig up JSA for hazards, hazard hunt with crew, and discussed plan for spotting equipment and rigging up lines for job. Discussed muster points and closest emergency location as well as coordinates.
6	Other	2/21/2023	20:30:00	Mix water test results- PH-7, Chlo-0, Temp-65F.
7	Rig-Up Equipment	2/21/2023	20:30:00	Begin rig up with crew.
8	Rig-Up Completed	2/21/2023	22:00:00	Complete rig up for job to nearest point before red zone.
9	Safety Meeting - Pre Job	2/22/2023	00:30:00	Held job specific hazards as well as confirming job procedure with co man and rest of crew associated with job.
10	Start Job	2/22/2023	01:41:44	TD-18152', OH-8.5", TP-18120' 5.5" 20#, FC-18115', TVD-8000', SURF-3330' 9.625" 36#, MUD 9.5#
11	Drop Bottom Plug	2/22/2023	01:42:38	Dropped by HES supervisor, witnessed by company man.

12	Test Lines	2/22/2023	01:43:30	Pumped 5bbls fresh water to fill lines at 4bpm 320psi, shut manifold, and performed 500psi k/o function test, followed with 5th gear stall at 1800psi, proceeded to bring pressure to 5000psi, pressure stabilized and held with no leaks.
13	Pump Spacer	2/22/2023	01:51:02	Pumped 50bbls of 11.5# 3.83y 24.16g/s FDP Spacer with 10g D-air at 6bpm 447psi.
14	Pump Cap Cement	2/22/2023	01:58:18	Pumped 575sks or 171bbls of 13# 1.67y 8.25g/s Elasticem at 9bpm 498psi.
15	Check Weight	2/22/2023	02:12:19	Weight verified with pressurized mud scales.
16	Pump Lead Cement	2/22/2023	02:16:57	Pumped 770sks 212.5bbls 13# 1.55y 7.16g/s Gasstop at 9bpm 520psi.
17	Check Weight	2/22/2023	02:29:27	Weight verified with pressurized mud scales.
18	Pump Tail Cement	2/22/2023	02:39:22	Pumped 1530sks or 433bbls 13.2# 1.59y 7.78g/s Elasticem at 9bpm 580psi.
19	Check Weight	2/22/2023	03:00:15	Weight verified with pressurized mud scales.
20	Shutdown	2/22/2023	03:29:27	Shutdown, washed up through pumps and lines with fresh water. Pumped total of 10bbls until clean.
21	Drop Top Plug	2/22/2023	03:38:43	Dropped by HES supervisor, witnessed by company man.
22	Pump Displacement	2/22/2023	03:38:48	Pumped 402bbls fresh water at 10bpm.
23	Bump Plug	2/22/2023	04:27:14	Slowed down at 380bbls away to 4bpm, final circulating pressure-2700psi. Bump pressure-3300psi.
24	Check Floats	02/22/2023	04:28	Released pressure and got 5bbls back. Floats held.
24	End Job	2/22/2023	04:31:14	Got 52bbls Cement to surface. Est TOT-7517', TOL-2460'. Total fresh water used-1050bbls
25	Pre-Rig Down Safety Meeting	2/22/2023	04:45:00	Held safety meeting with crew prior to rig down, discussed possibility of trapped pressure, swing radius, slips trips and falls, pinch points and risks associated with rig down.
26	Rig Down Lines	2/22/2023	05:00:00	Begin rig down

27	Pre-Convoy Safety Meeting	2/22/2023	05:45:00	Held safety meeting with convoy, discussed trip hazards, directions and all crew fit for duty prior to departure.
28	Rig-Down Completed	2/22/2023	05:45:00	Rig down complete with no injuries, spills or damage to equipment.
29	Depart Location for Service Center or Other Site	2/22/2023	06:00:00	Depart location, if applicable journey will be submitted.

3.0 Attachments

3.1 Real Time iCem Job Chart

